

ASD Weekly Highlights for the Week Ending 02-Jun-2006

Operations

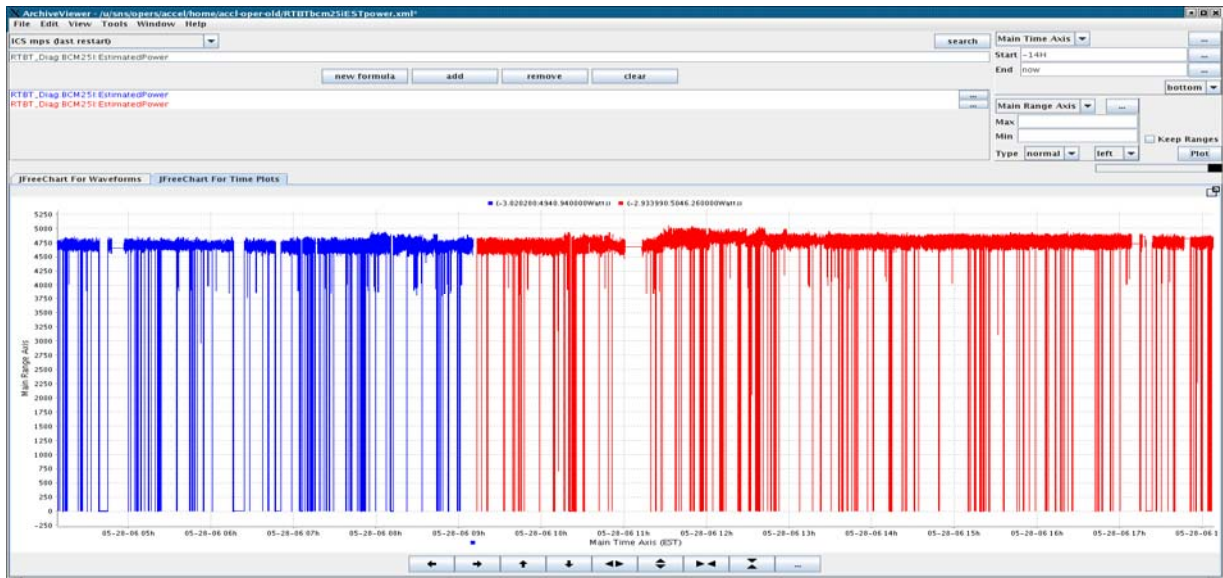
ASD Operations delivered beam in a preliminary production run from May 27 to June 31. Statistics for the run are:

Activity Type	Hours	Percent
Beam Time (delivered to Target)	95.10	
Machine Studies (R&D)	2.00	
Machine Studies (Remedial)	3.00	
Planned Shutdown (No Beam/Testing)	12.00	
Breakdown	7.90	
Total Planned Beamtime	106 .00	
Total Beamtime Delivered	95.10	89.72
Total Breakdown	7.90	7.45

The Breakdown Statistics for the run are:

Group	Hours	Percent of Breakdown Total
Controls	.40	5.06
Cooling Systems	2.30	29.11
Electrical Systems	1.00	12.66
Ion Source	.40	5.06
Machine Protection System	.20	2.53
Magnets	.50	6.33
Protection Systems	.80	10.13
RF Systems	1.90	24.05
Vacuum	.40	5.06

A Stripchart of the beam power over the 95 production hours of the run is below. The average power level is ~5kW.



Accelerator Physics

RF Systems

- The RF Group Leader gave a presentation to the Advanced Beam Dynamics Workshop in Japan.

Ring RF

- Production SNS Beam over the weekend and on through the first part of this week required 2 Ring RF stations operating at 12 kV each. The stations performed flawlessly.
- With continuous 2 Hz beam at moderate intensity we were able to observe the operation of the LLRF control system. We recorded data that will be useful in tuning the system for higher intensity operation.

LINAC RF

- Work progressed on refurbishing the 2.5 MW klystron from DTL3 with shorted solenoid windings and water leaks.
- Spare DTL and CCL klystrons are being prepared for staging in the klystron gallery on HV tanks.
- A requisition for spare SCL klystrons has been prepared.
- The Brookhaven cryo-couplers have been tested to full power and are nearly complete in their test cycle.

Ion Source

- On May 31, after the LINAC was switched off, the FrontEnd ion source was retuned and delivered 38 mA. This is only 5 mA less than the same source delivered 77 days earlier after its first cesiation.
- The unusually small performance degradation is likely due to
 - 1) the absence of the 13 MHz RF
 - 2) keeping the Cesium collar as cold as possible
 - 3) an increased cesium dosage in the first cesiation
 - 4) the prolonged time period between conditioning and cesiation
- After achieving 38 mA, a 2nd cesiation was performed, which did not improve the current output. This and the fact that the 1st cesiation produced over 40 mA suggest that our first cesiation delivered more than the typical 20 mg, because we were misguided by a faulty thermocouple.

Instrumentation and Controls

SRF Facility

Diagnostics

- Wire Scanners: We are preparing 7 wire scanners for the June installation. We expect to have them ready and tested for installation by June-15th.
- Laser system: Laser for the laser stripping experiment in the HEBT tunnel was turned on. First path calibration has been successful. The system was fully ready for operation until the high laser power testing damaged the vacuum window without catastrophe [the vacuum integrity was not compromised]. The reasons for the damage is small laser spot size due to large angle requirement at 860 MeV and the fused silica window is not the best candidate for 355 nm light. Alternative approach is under testing.
- Neutron production from H⁻ at 1 GeV was tested using Tungsten wires parked in the beam and PMTs and ion chambers measuring the neutrons and gammas. We used 4 wire scanners at 1 GeV with different beam intensities. All normalized results are within 1% of one another. More analysis is required to complete the data set.
- Beam Position Monitors: New feature is added to all Ring BPMs to measure turn-by-turn current. Cary Long and Craig Deibele also added current measurement capabilities to all LINAC, and RTBT BPMs. Results are posted in the logbook.

Survey and Alignment

Cryo Systems

Mechanical Systems

Water

Vacuum

Mechanical

Electrical Systems

Power Supplies

- Performed LOTO on the Klystron gallery, HEBT service building, ring service building, and RTBT service buildings in preparation for maintenance activities
- Installed covers over the 208 VAC in the extraction kicker control racks
- Troubleshoot extraction kicker #5 due to missing pulses

Modulators

- Assembly of new choke design for RFQ modulator
- Initiated maintenance process on CCLMod-2
- Completed maintenance CCLMod-3
- Repaired LEBT Chopper MOSFET switch cards

Power Distribution/cabling

- Design review for Target Building Remote Handling Control Room relocation.
- Design review for relocating power distribution and lighting panels outside of High Bay area.
- Design review for drawing changes for CLO 3rd floor buildout. .
- Reviewed and approved Design Change Notice (DCN) for Target Building Truck Bay 5 ton hoist.
- Punch list created for CLO Auditorium and work with craft electricians to correct the items identified.
- Construction oversight provided for electrical work in progress at the three DLP projects.
- As-Built drawings of Target Bldg. MCC's are being circulated for squad check
- Completed drawings for vacuum circuits and insulating vacuum circuits and preparing equipment power layout drawing for other Klystron racks and equipment
- Completed panel schedule drawing modifications to provide 6 additional power circuits for RF rack installed in Front end and MEBT rebuncher racks
- Completed SRO packages for Target BL4 modifications and Klystron vacuum

- Prepared DCN for BL 2TU to install camera to monitor BL5 construction phases
- Prepared DCN for misc power receptacles for cages in target gallery area